

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

A-1	³ DCF's for external ground radiation, (mrem/yr)/(pCi/g)	3	3	3
A-1	³ At-218 (Source: FGR 12)	³ 5.847E-03	³ 5.847E-03	³ DCF1(1)
A-1	³ Bi-210 (Source: FGR 12)	³ 3.606E-03	³ 3.606E-03	³ DCF1(2)
A-1	³ Bi-214 (Source: FGR 12)	³ 9.808E+00	³ 9.808E+00	³ DCF1(3)
A-1	³ Pa-234 (Source: FGR 12)	³ 1.155E+01	³ 1.155E+01	³ DCF1(4)
A-1	³ Pa-234m (Source: FGR 12)	³ 8.967E-02	³ 8.967E-02	³ DCF1(5)
A-1	³ Pb-210 (Source: FGR 12)	³ 2.447E-03	³ 2.447E-03	³ DCF1(6)
A-1	³ Pb-214 (Source: FGR 12)	³ 1.341E+00	³ 1.341E+00	³ DCF1(7)
A-1	³ Po-210 (Source: FGR 12)	³ 5.231E-05	³ 5.231E-05	³ DCF1(8)
A-1	³ Po-214 (Source: FGR 12)	³ 5.138E-04	³ 5.138E-04	³ DCF1(9)
A-1	³ Po-218 (Source: FGR 12)	³ 5.642E-05	³ 5.642E-05	³ DCF1(10)
A-1	³ Ra-226 (Source: FGR 12)	³ 3.176E-02	³ 3.176E-02	³ DCF1(11)
A-1	³ Rn-222 (Source: FGR 12)	³ 2.354E-03	³ 2.354E-03	³ DCF1(12)
A-1	³ Th-230 (Source: FGR 12)	³ 1.209E-03	³ 1.209E-03	³ DCF1(13)
A-1	³ Th-234 (Source: FGR 12)	³ 2.410E-02	³ 2.410E-02	³ DCF1(14)
A-1	³ Tl-210 (Source: no data)	³ 0.000E+00	³ -2.000E+00	³ DCF1(15)
A-1	³ U-234 (Source: FGR 12)	³ 4.017E-04	³ 4.017E-04	³ DCF1(16)
A-1	³ U-238 (Source: FGR 12)	³ 1.031E-04	³ 1.031E-04	³ DCF1(17)

B-1	³ Dose conversion factors for inhalation, mrem/pCi:	3	3	3
B-1	³ Pb-210+D	³ 1.380E-02	³ 1.360E-02	³ DCF2(1)
B-1	³ Po-210	³ 9.400E-03	³ 9.400E-03	³ DCF2(2)
B-1	³ Ra-226+D	³ 8.594E-03	³ 8.580E-03	³ DCF2(3)
B-1	³ Th-230	³ 3.260E-01	³ 3.260E-01	³ DCF2(4)
B-1	³ U-234	³ 1.320E-01	³ 1.320E-01	³ DCF2(5)
B-1	³ U-238	³ 1.180E-01	³ 1.180E-01	³ DCF2(6)
B-1	³ U-238+D	³ 1.180E-01	³ 1.180E-01	³ DCF2(7)

D-1 ³ Dose conversion factors for ingestion, mrem/pCi: 3 3 3
D-1 ³ Pb-210+D ³ 5.376E-03 ³ 5.370E-03 ³ DCF3(1)
D-1 ³ Po-210 ³ 1.900E-03 ³ 1.900E-03 ³ DCF3(2)
D-1 ³ Ra-226+D ³ 1.321E-03 ³ 1.320E-03 ³ DCF3(3)
D-1 ³ Th-230 ³ 5.480E-04 ³ 5.480E-04 ³ DCF3(4)

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

D-34³

D-34³ U-238³, plant/soil concentration ratio, dimensionless³ 2.500E-03³ 2.500E-03³ RTF(6,1)

D-34³ U-238³, beef/livestock-intake ratio, (pCi/kg)/(pCi/d)³ 3.400E-04³ 3.400E-04³ RTF(6,2)

D-34³ U-238³, milk/livestock-intake ratio, (pCi/L)/(pCi/d)³ 6.000E-04³ 6.000E-04³ RTF(6,3)

D-34³

D-34³ U-238+D³, plant/soil concentration ratio, dimensionless³ 2.500E-03³ 2.500E-03³ RTF(7,1)

D-34³ U-238+D³, beef/livestock-intake ratio, (pCi/kg)/(pCi/d)³ 3.400E-04³ 3.400E-04³ RTF(7,2)

D-34³ U-238+D³, milk/livestock-intake ratio, (pCi/L)/(pCi/d)³ 6.000E-04³ 6.000E-04³ RTF(7,3)

³

D-5³ Bioaccumulation factors, fresh water, L/kg:

³ ³ ³

D-5³ Pb-210+D³, fish³ 3.000E+02³ 3.000E+02³ BIOFAC(1,1)

D-5³ Pb-210+D³, crustacea and mollusks³ 1.000E+02³ 1.000E+02³ BIOFAC(1,2)

D-5³

³ ³ ³

D-5³ Po-210³, fish³ 1.000E+02³ 1.000E+02³ BIOFAC(2,1)

D-5³ Po-210³, crustacea and mollusks³ 2.000E+04³ 2.000E+04³ BIOFAC(2,2)

D-5³

³ ³ ³

D-5³ Ra-226+D³, fish³ 5.000E+01³ 5.000E+01³ BIOFAC(3,1)

D-5³ Ra-226+D³, crustacea and mollusks³ 2.500E+02³ 2.500E+02³ BIOFAC(3,2)

D-5³

³ ³ ³

D-5³ Th-230³, fish³ 1.000E+02³ 1.000E+02³ BIOFAC(4,1)

D-5³ Th-230³, crustacea and mollusks³ 5.000E+02³ 5.000E+02³ BIOFAC(4,2)

D-5³

³ ³ ³

D-5³ U-234³, fish³ 1.000E+01³ 1.000E+01³ BIOFAC(5,1)

D-5³ U-234³, crustacea and mollusks³ 6.000E+01³ 6.000E+01³ BIOFAC(5,2)

D-5³

³ ³ ³

D-5³ U-238³, fish³ 1.000E+01³ 1.000E+01³ BIOFAC(6,1)

D-5³ U-238³, crustacea and mollusks³ 6.000E+01³ 6.000E+01³ BIOFAC(6,2)

D-5³

³ ³ ³

D-5³ U-238+D³, fish³ 1.000E+01³ 1.000E+01³ BIOFAC(7,1)

D-5³ U-238+D³, crustacea and mollusks³ 6.000E+01³ 6.000E+01³ BIOFAC(7,2)

|||||

#For DCF1(xxx) only, factors are for infinite depth & area. See ETG table in Ground Pathway of Detailed Report.

*Base Case means Default.Lib w/o Associate Nuclide contributions.

1RESRAD, Version 6.4 T« Limit = 30 days 05/07/2009 18:24 Page 4

Summary : U_chain_4e3m2_15_2kg vegetables_-GW_-Rn

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

File : C:\RESRAD FAMILY\RESRAD\USERFILES\NONNUC UCHAIN_4E3M2.RAD

Site-Specific Parameter Summary

R011³ Area of contaminated zone (m**2) ³ 4.000E+03 ³ 1.000E+04 ³ --- ³ AREA

R011³ Thickness of contaminated zone (m) ³ 1.500E-01 ³ 2.000E+00 ³ --- ³ THICK01

R011³ Length parallel to aquifer flow (m) ³ 1.000E+02 ³ 1.000E+02 ³ --- ³ LCZPAQ

R011³ Basic radiation dose limit (mrem/yr) ³ 2.500E+01 ³ 3.000E+01 ³ ---- ³ BRI

R011³ Time since placement of material (yr) ³ 0.000E+00 ³ 0.000E+00 ³ --- ³ TI

R011³ Times for calculations (yr) ³ 3.000E+00 ³ 3.000E+00 ³ --- ³ T(3)

R011³ Times for calculations (yr) ³ not used ³ 0.000E+000 ³ --- ³ T(9)

P0101211-Initial version 1.0 - 11/16/2018 - P0101211-000E100-10-000E100-1

R012³ Initial principal radionuclide (pCi/g): Pb-210 = 1.000E+00³ 0.000E+00³ ---

R012³ Initial principal radionuclide (pCi/g): Po-210 = 1.000E+00; Po-214 = 1.000E+00; Cs-137 = 2.226E+00; Cs-134 = 0.000E+00

R012³ Initial principal radionuclide (pCi/g): Ra-226 = 1.00E+00; 0.00E+00; ---; 3;
 R012³ Initial principal radionuclide (³Ra-226) = 1.00E+00; 0.00E+00; ---; 3;

R012³ Initial principal radionuclide ($\mu\text{Ci/g}$): Th-230 = 1.000×10^{-3} ; $0.000 \times 10^{+0}$ --- ; R012³ Initial principal radionuclide ($\mu\text{Ci/g}$): U-234 = 1.000×10^{-3} ; $0.000 \times 10^{+0}$ --- ;

R012³ Initial principal radionuclide (pCi/g): U-234 1.000E+00 0.000E+00 --- ---

R012³ Initial principal radionuclide (pCi/g); U-238 = 1.000E+00 - 0.000E+00 ---
 R012³ Concentration in groundwater (pCi/L); Pb-210 = not used = 0.000E+00³

R012 - Concentration in groundwater (pc/L): Pb-210 = not used, 0.000E+000; R012³ - Concentration in groundwater (pc/L): Pb-210 = not used, 0.000E+000³

R012 - Concentration in groundwater (pCi/L): Fo-210 = not used - 0.000E+00 - ---
 R012³ Concentration in groundwater (pCi/L): Ba-226 = not used - 0.000E+00 - ---
³

R012³ Concentration in groundwater (pCi/L): Ra-226 not used 0.000E+00 ---
 R012³ Concentration in groundwater (pCi/L): Th-230³ not used 0.000E+00 ---³

R012 Concentration in groundwater (pCi/L); Tl-204 not used 0.000E+00 ---
 R012³ Concentration in groundwater (pCi/L); U-234³ not used 0.000E+00 3
 --- --- 3

R012 Concentration in groundwater (pCi/L): U-234 not used 0.000E+00 ---
 R012³ Concentration in groundwater (pCi/L): U-238 ³ not used 0.000E+00 ³ --- ³

· U_chain_4e3m2_15_2kg_vegetables_-GW_-Rn.txt

R013	³ Cover depth (m)	³ 0.000E+00	³ 0.000E+00	³ ---	³ COVER0
R013	³ Density of cover material (g/cm**3)	³ not used	³ 1.500E+00	³ ---	³ DENSCV
R013	³ Cover depth erosion rate (m/yr)	³ not used	³ 1.000E-03	³ ---	³ VCV
R013	³ Density of contaminated zone (g/cm**3)	³ 1.500E+00	³ 1.500E+00	³ ---	³ DENSCZ
R013	³ Contaminated zone erosion rate (m/yr)	³ 1.000E-03	³ 1.000E-03	³ ---	³ VCZ
R013	³ Contaminated zone total porosity	³ 4.000E-01	³ 4.000E-01	³ ---	³ TPCZ
R013	³ Contaminated zone field capacity	³ 2.000E-01	³ 2.000E-01	³ ---	³ FCCZ
R013	³ Contaminated zone hydraulic conductivity (m/yr)	³ 1.000E+01	³ 1.000E+01	³ ---	³ HCCZ
R013	³ Contaminated zone b parameter	³ 5.300E+00	³ 5.300E+00	³ ---	³ BCZ
R013	³ Average annual wind speed (m/sec)	³ 2.000E+00	³ 2.000E+00	³ ---	³ WIND
R013	³ Humidity in air (g/m**3)	³ not used	³ 8.000E+00	³ ---	³ HUMID
R013	³ Evapotranspiration coefficient	³ 5.000E-01	³ 5.000E-01	³ ---	³ EVAPTR
R013	³ Precipitation (m/yr)	³ 1.000E+00	³ 1.000E+00	³ ---	³ PRECIP
R013	³ Irrigation (m/yr)	³ 2.000E-01	³ 2.000E-01	³ ---	³ RI
R013	³ Irrigation mode	³ overhead	³ overhead	³ ---	³ IDITCH
R013	³ Runoff coefficient	³ 2.000E-01	³ 2.000E-01	³ ---	³ RUNOFF
R013	³ Watershed area for nearby stream or pond (m**2)	³ 1.000E+06	³ 1.000E+06	³ ---	³ WAREA
R013	³ Accuracy for water/soil computations	³ 1.000E-03	³ 1.000E-03	³ ---	³ EPS

R014 ³ Density of saturated zone (g/cm**3) ³ 1.500E+00 ³ 1.500E+00 ³ --- ³ DENSAQ
 R014 ³ Saturated zone total porosity ³ 4.000E-01 ³ 4.000E-01 ³ --- ³ TPSZ
 R014 ³ Saturated zone effective porosity ³ 2.000E-01 ³ 2.000E-01 ³ --- ³ EPSZ

1RESRAD, Version 6.4 T_{ex} Limit = 30 days 05/07/2009 18:24 Page 5

Summary : U_chain_4e3m2_.15_2kg vegetables_-GW_-Rn

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

Site-Specific Parameter Summary (continued)

R014 ³ Saturated zone hydraulic conductivity (m/yr) ³ 1.000E+02 ³ 1.000E+02 ³ --- ³ HCSZ

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt						
R014 ³ Saturated zone hydraulic gradient	³ 2.000E-02	³ 2.000E-02	³	---	³	HGWT
R014 ³ Saturated zone b parameter	³ 5.300E+00	³ 5.300E+00	³	---	³	BSZ
R014 ³ Water table drop rate (m/yr)	³ 1.000E-03	³ 1.000E-03	³	---	³	VWT
R014 ³ Well pump intake depth (m below water table)	³ 1.000E+01	³ 1.000E+01	³	---	³	DWIBWT
R014 ³ Model: Nondispersion (ND) or Mass-Balance (MB)	³ ND	³ ND	³	---	³	MODEL
R014 ³ Well pumping rate (m**3/yr)	³ 2.500E+02	³ 2.500E+02	³	---	³	UW
	³	³	³			
R015 ³ Number of unsaturated zone strata	³ 1	³ 1	³	---	³	NS
R015 ³ Unsat. zone 1, thickness (m)	³ 4.000E+00	³ 4.000E+00	³	---	³	H(1)
R015 ³ Unsat. zone 1, soil density (g/cm**3)	³ 1.500E+00	³ 1.500E+00	³	---	³	DENSUZ(1)
R015 ³ Unsat. zone 1, total porosity	³ 4.000E-01	³ 4.000E-01	³	---	³	TPUZ(1)
R015 ³ Unsat. zone 1, effective porosity	³ 2.000E-01	³ 2.000E-01	³	---	³	EPUZ(1)
R015 ³ Unsat. zone 1; field capacity	³ 2.000E-01	³ 2.000E-01	³	---	³	FCUZ(1)
R015 ³ Unsat. zone 1, soil-specific b parameter	³ 5.300E+00	³ 5.300E+00	³	---	³	BUZ(1)
R015 ³ Unsat. zone 1, hydraulic conductivity (m/yr)	³ 1.000E+01	³ 1.000E+01	³	---	³	HCUZ(1)
	³	³	³			
R016 ³ Distribution coefficients for Pb-210	³	³	³	³	³	
R016 ³ Contaminated zone (cm**3/g)	³ 1.000E+02	³ 1.000E+02	³	---	³	DCNUCC(1)
R016 ³ Unsaturated zone 1 (cm**3/g)	³ 1.000E+02	³ 1.000E+02	³	---	³	DCNUCU(1,1)
R016 ³ Saturated zone (cm**3/g)	³ 1.000E+02	³ 1.000E+02	³	---	³	DCNUCS(1)
R016 ³ Leach rate (/yr)	³ 0.000E+00	³ 0.000E+00	³	2.217E-02	³	ALEACH(1)
R016 ³ Solubility constant	³ 0.000E+00	³ 0.000E+00	³	not used	³	SOLUBK(1)
	³	³	³			
R016 ³ Distribution coefficients for Po-210	³	³	³	³	³	
R016 ³ Contaminated zone (cm**3/g)	³ 1.000E+01	³ 1.000E+01	³	---	³	DCNUCC(2)
R016 ³ Unsaturated zone 1 (cm**3/g)	³ 1.000E+01	³ 1.000E+01	³	---	³	DCNUCU(2,1)
R016 ³ Saturated zone (cm**3/g)	³ 1.000E+01	³ 1.000E+01	³	---	³	DCNUCS(2)
R016 ³ Leach rate (/yr)	³ 0.000E+00	³ 0.000E+00	³	2.176E-01	³	ALEACH(2)
R016 ³ Solubility constant	³ 0.000E+00	³ 0.000E+00	³	not used	³	SOLUBK(2)
	³	³	³			
R016 ³ Distribution coefficients for Ra-226	³	³	³	³	³	
R016 ³ Contaminated zone (cm**3/g)	³ 7.000E+01	³ 7.000E+01	³	---	³	DCNUCC(3)
R016 ³ Unsaturated zone 1 (cm**3/g)	³ 7.000E+01	³ 7.000E+01	³	---	³	DCNUCU(3,1)
R016 ³ Saturated zone (cm**3/g)	³ 7.000E+01	³ 7.000E+01	³	---	³	DCNUCS(3)
R016 ³ Leach rate (/yr)	³ 0.000E+00	³ 0.000E+00	³	3.165E-02	³	ALEACH(3)

1RESRAD, Version 6.4 T_« Limit = 30 days 05/07/2009 18:24 Page 6

Summary : U chain 4e3m2 .15 2kg vegetables -GW -Rn

File : C:\RESRAD FAMILY\RESRAD\USERFILES\NONNUC UCHAIN 4E3M2.RAD

Site-Specific Parameter Summary (continued)

R016³ Distribution coefficients for U-234

R016 ³	Contaminated zone (cm***3/g)	³ 5.000E+01	³ 5.000E+01	³ ---	³ DCNUCC(5)
R016 ³	Unsaturated zone 1 (cm***3/g)	³ 5.000E+01	³ 5.000E+01	³ ---	³ DCNUCU(5,1)
R016 ³	Saturated zone (cm***3/g)	³ 5.000E+01	³ 5.000E+01	³ ---	³ DCNUCS(5)
R016 ³	Leach rate (/yr)	³ 0.000E+00	³ 0.000E+00	³ 4.426E-02	³ ALEACH(5)
R016 ³	Solubility constant	³ 0.000E+00	³ 0.000E+00	³ not used	³ SOLUBK(5)

R016³ Distribution coefficients for U-238

R016	³	Contaminated zone (cm***3/g)	³ 5.000E+01	³ 5.000E+01	³ ---	³ DCNUCC(6)
R016	³	Unsaturated zone 1 (cm***3/g)	³ 5.000E+01	³ 5.000E+01	³ ---	³ DCNUCU(6,1)
R016	³	Saturated zone (cm***3/g)	³ 5.000E+01	³ 5.000E+01	³ ---	³ DCNUCS(6)
R016	³	Leach rate (/yr)	³ 0.000E+00	³ 0.000E+00	³ 4.426E-02	³ ALEACH(6)
R016	³	Solubility constant	³ 0.000E+00	³ 0.000E+00	³ not used	³ SOLUBK(6)

R017 ³ Inhalation rate (m**3/yr)

R017³ Mass loading for inhalation (g/m**3) ³ 1.000E-04 ³ 1.000E-04 ³ --- ³ MLINH

R017³ Exposure duration

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

R017 ³ Shielding factor, inhalation	³ 4.000E-01	³ 4.000E-01	³	---	³ SHE3
R017 ³ Shielding factor, external gamma	³ 7.000E-01	³ 7.000E-01	³	---	³ SHF1
R017 ³ Fraction of time spent indoors	³ 5.000E-01	³ 5.000E-01	³	---	³ FIND
R017 ³ Fraction of time spent outdoors (on site)	³ 2.500E-01	³ 2.500E-01	³	---	³ FOTD
R017 ³ Shape factor flag, external gamma	³ 1.000E+00	³ 1.000E+00	³	>0 shows circular AREA.	³ FS
R017 ³ Radii of shape factor array (used if FS = -1):	³	³	³	³	
R017 ³ Outer annular radius (m), ring 1:	³ not used	³ 5.000E+01	³	---	³ RAD_SHAPE(1)
R017 ³ Outer annular radius (m), ring 2:	³ not used	³ 7.071E+01	³	---	³ RAD_SHAPE(2)
R017 ³ Outer annular radius (m), ring 3:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(3)
R017 ³ Outer annular radius (m), ring 4:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(4)
R017 ³ Outer annular radius (m), ring 5:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(5)
R017 ³ Outer annular radius (m), ring 6:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(6)
R017 ³ Outer annular radius (m), ring 7:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(7)
R017 ³ Outer annular radius (m), ring 8:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(8)
R017 ³ Outer annular radius (m), ring 9:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(9)
R017 ³ Outer annular radius (m), ring 10:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(10)
R017 ³ Outer annular radius (m), ring 11:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(11)
R017 ³ Outer annular radius (m), ring 12:	³ not used	³ 0.000E+00	³	---	³ RAD_SHAPE(12)

R017 ³ Fractions of annular areas within AREA:	³	³	³	³	
R017 ³ Ring 1	³ not used	³ 1.000E+00	³	---	³ FRACA(1)
R017 ³ Ring 2	³ not used	³ 2.732E-01	³	---	³ FRACA(2)
R017 ³ Ring 3	³ not used	³ 0.000E+00	³	---	³ FRACA(3)
R017 ³ Ring 4	³ not used	³ 0.000E+00	³	---	³ FRACA(4)
R017 ³ Ring 5	³ not used	³ 0.000E+00	³	---	³ FRACA(5)
R017 ³ Ring 6	³ not used	³ 0.000E+00	³	---	³ FRACA(6)
R017 ³ Ring 7	³ not used	³ 0.000E+00	³	---	³ FRACA(7)
R017 ³ Ring 8	³ not used	³ 0.000E+00	³	---	³ FRACA(8)
R017 ³ Ring 9	³ not used	³ 0.000E+00	³	---	³ FRACA(9)
R017 ³ Ring 10	³ not used	³ 0.000E+00	³	---	³ FRACA(10)
R017 ³ Ring 11	³ not used	³ 0.000E+00	³	---	³ FRACA(11)
R017 ³ Ring 12	³ not used	³ 0.000E+00	³	---	³ FRACA(12)

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

File : C:\RESRAD FAMILY\RESRAD\USERFILES\NONNUC UCHAIN 4E3M2.RAD

Site-Specific Parameter Summary (continued)

U chain 4e3m2 15 2kg vegetables -GW -Rn.txt

R019	³	Livestock water fraction from ground water	³ 0.000E+00	³ 1.000E+00	³	---	³ FGWLW
R019	³	Irrigation fraction from ground water	³ 0.000E+00	³ 1.000E+00	³	---	³ FGWIR
R19B	³	Wet weight crop yield for Non-Leafy (kg/m**2)	³ 7.000E-01	³ 7.000E-01	³	---	³ YV(1)
R19B	³	Wet weight crop yield for Leafy (kg/m**2)	³ 1.500E+00	³ 1.500E+00	³	---	³ YV(2)
R19B	³	Wet weight crop yield for Fodder (kg/m**2)	³ 1.100E+00	³ 1.100E+00	³	---	³ YV(3)
R19B	³	Growing Season for Non-Leafy (years)	³ 1.700E-01	³ 1.700E-01	³	---	³ TE(1)
R19B	³	Growing Season for Leafy (years)	³ 2.500E-01	³ 2.500E-01	³	---	³ TE(2)
R19B	³	Growing Season for Fodder (years)	³ 8.000E-02	³ 8.000E-02	³	---	³ TE(3)
R19B	³	Translocation Factor for Non-Leafy	³ 1.000E-01	³ 1.000E-01	³	---	³ TIV(1)
R19B	³	Translocation Factor for Leafy	³ 1.000E+00	³ 1.000E+00	³	---	³ TIV(2)
R19B	³	Translocation Factor for Fodder	³ 1.000E+00	³ 1.000E+00	³	---	³ TIV(3)
R19B	³	Dry Foliar Interception Fraction for Non-Leafy	³ 2.500E-01	³ 2.500E-01	³	---	³ RDRY(1)
R19B	³	Dry Foliar Interception Fraction for Leafy	³ 2.500E-01	³ 2.500E-01	³	---	³ RDRY(2)
R19B	³	Dry Foliar Interception Fraction for Fodder	³ 2.500E-01	³ 2.500E-01	³	---	³ RDRY(3)
R19B	³	Wet Foliar Interception Fraction for Non-Leafy	³ 2.500E-01	³ 2.500E-01	³	---	³ RWET(1)
R19B	³	Wet Foliar Interception Fraction for Leafy	³ 2.500E-01	³ 2.500E-01	³	---	³ RWET(2)
R19B	³	Wet Foliar Interception Fraction for Fodder	³ 2.500E-01	³ 2.500E-01	³	---	³ RWET(3)
R19B	³	Weathering Removal Constant for Vegetation	³ 2.000E+01	³ 2.000E+01	³	---	³ WLAM
C14	³	C-12 concentration in water (g/cm**3)	³ not used	³ 2.000E-05	³	---	³ C12WTR
C14	³	C-12 concentration in contaminated soil (g/g)	³ not used	³ 3.000E-02	³	---	³ C12CZ
C14	³	Fraction of vegetation carbon from soil	³ not used	³ 2.000E-02	³	---	³ CSOIL
1RESRAD, Version 6.4	T« Limit = 30 days	05/07/2009	18:24	Page	8		
Summary : U_chain_4e3m2_.15_2kg vegetables_-GW_-Rn							
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD							

Site-Specific Parameter Summary (continued)

C14 ³ Fraction of vegetation carbon from air ³ not used ³ 9.800E-01 ³ --- ³ CAIR
 C14 ³ C-14 evasion layer thickness in soil (m) ³ not used ³ 3.000E-01 ³ --- . ³ DMC

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

C14	³	C-14 evasion flux rate from soil (1/sec)	³ not used	³ 7.000E-07	³	---	³ EVSN
C14	³	C-12 evasion flux rate from soil (1/sec)	³ not used	³ 1.000E-10	³	---	³ REVSN
C14	³	Fraction of grain in beef cattle feed	³ not used	³ 8.000E-01	³	---	³ AVFG4
C14	³	Fraction of grain in milk cow feed	³ not used	³ 2.000E-01	³	---	³ AVFG5
	³		³	³	³		
STOR	³	Storage times of contaminated foodstuffs (days):	³	³	³	³	
STOR	³	Fruits, non-leafy vegetables, and grain	³ 1.400E+01	³ 1.400E+01	³	---	³ STOR_T(1)
STOR	³	Leafy vegetables	³ 1.000E+00	³ 1.000E+00	³	---	³ STOR_T(2)
STOR	³	Milk	³ 1.000E+00	³ 1.000E+00	³	---	³ STOR_T(3)
STOR	³	Meat and poultry	³ 2.000E+01	³ 2.000E+01	³	---	³ STOR_T(4)
STOR	³	Fish	³ 7.000E+00	³ 7.000E+00	³	---	³ STOR_T(5)
STOR	³	Crustacea and mollusks	³ 7.000E+00	³ 7.000E+00	³	---	³ STOR_T(6)
STOR	³	Well water	³ 1.000E+00	³ 1.000E+00	³	---	³ STOR_T(7)
STOR	³	Surface water	³ 1.000E+00	³ 1.000E+00	³	---	³ STOR_T(8)
STOR	³	Livestock fodder	³ 4.500E+01	³ 4.500E+01	³	---	³ STOR_T(9)
	³		³	³	³		
R021	³	Thickness of building foundation (m)	³ not used	³ 1.500E-01	³	---	³ FLOOR1
R021	³	Bulk density of building foundation (g/cm**3)	³ not used	³ 2.400E+00	³	---	³ DENSFL
R021	³	Total porosity of the cover material	³ not used	³ 4.000E-01	³	---	³ TPCV
R021	³	Total porosity of the building foundation	³ not used	³ 1.000E-01	³	---	³ TPFL
R021	³	Volumetric water content of the cover material	³ not used	³ 5.000E-02	³	---	³ PH2OCV
R021	³	Volumetric water content of the foundation	³ not used	³ 3.000E-02	³	---	³ PH2OFL
R021	³	Diffusion coefficient for radon gas (m/sec):	³	³	³	³	
R021	³	in cover material	³ not used	³ 2.000E-06	³	---	³ DIFCV
R021	³	in foundation material	³ not used	³ 3.000E-07	³	---	³ DIFFL
R021	³	in contaminated zone soil	³ not used	³ 2.000E-06	³	---	³ DIFCZ
R021	³	Radon vertical dimension of mixing (m)	³ not used	³ 2.000E+00	³	---	³ HMIX
R021	³	Average building air exchange rate (1/hr)	³ not used	³ 5.000E-01	³	---	³ REXG
R021	³	Height of the building (room) (m)	³ not used	³ 2.500E+00	³	---	³ HRM
R021	³	Building interior area factor	³ not used	³ 0.000E+00	³	---	³ FAI
R021	³	Building depth below ground surface (m)	³ not used	³ -1.000E+00	³	---	³ DMFL
R021	³	Emanating power of Rn-222 gas	³ not used	³ 2.500E-01	³	---	³ EMANA(1)
R021	³	Emanating power of Rn-220 gas	³ not used	³ 1.500E-01	³	---	³ EMANA(2)
	³		³	³	³		
TITL	³	Number of graphical time points	³	³²	³	³	³ NPTS

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

TITL³ Maximum number of integration points for dose ³ 17³ --- 3 --- --- --- ³ LYMAX

TITL³ Maximum number of integration points for risk 3 - 1 3 --- 3 --- --- 3 KYMAX

1RESRAD, Version 6.4 T \ll Limit = 30 days 05/07/2009 18:24 Page 9

Summary : U_chain_4e3m2_.15_2kg vegetables_-GW_-Rn

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

Summary of Pathway Selections

Pathway ³ User Selection

1 -- external gamma ³ active

2 -- inhalation (w/o radon)³ active

3 -- plant ingestion ³ active

4 -- meat ingestion ³ active

5 -- milk ingestion 3 active

6 -- aquatic foods 3 active

7 -- drinking water ³ suppressed

8 -- soil ingestion 3 active

Find peak pathway doses ³ suppressed

1RESRAD, Version 6.4 T₉₀ Limit = 30 days 05/07/2009 18:24 Page 10

Summary : U chain 4e3m2 .15 2kg vegetables -GW -Rn

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC UCHAIN 4E3M2.RAD

Contaminated Zone Dimensions

Initial Soil Concentrations, pCi/g

Area: 4000.00 square meters

Pb-210 1.000E+00

Thickness: 0.15 meters

Po-210 1.000E+00

Ra-226 1.000E+00

Th-230 1.000E+00

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

U-234 : 1.000E+00

U-238 1.000E+00

0

Total Dose TDOSE(t), mrem/yr

Basic Radiation Dose Limit = 2.500E+01 mrem/yr

Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years): 0.000E+00 1.000E+00 3.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02 1.000E+03

TDOSE(t): 5.923E+00 5.722E+00 5.347E+00 4.216E+00 2.127E+00 1.871E-01 3.386E-15 1.099E-01

M(t): 2.369E-01 2.289E-01 2.139E-01 1.686E-01 8.507E-02 7.484E-03 1.354E-16 4.397E-03

0Maximum TDOSE(t): 5.923E+00 mrem/yr at t = 0.000E+00 years

1RESRAD, Version 6.4 T₉₀ Limit = 30 days 05/07/2009 18:24 Page 11

Summary : U_chain_4e3m2_.15_2kg_vegetables_-GW_-Rn

File : C:\RESRAD\FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Ground Inhalation Radon Plant Meat Milk Soil

Radio- Äääääääääääääääää Äääääääääääääää Äääääääääääääää Äääääääääääääää Äääääääääääääää

Pb-210 3.330E-03 0.0006 1.054E-03 0.0002 0.000E+00 0.0000 1.792E-02 0.0030 6.134E-02 0.0104 2.026E-02 0.0034 1.689E-01
 0.0000

0.0285

Po-210 1.130E-05 0.0000 2.323E-04 0.0000 0.000E+00 0.0000 2.737E-04 0.0000 2.623E-02 0.0044 2.573E-03 0.0004 2.208E-02
0.0037

Ra-226 5.358E+00 0.9046 5.062E-04 0.0001 0.000E+00 0.0000 1.760E-02 0.0030 1.657E-02 0.0028 2.104E-02 0.0036
 3.799E-02 0.0064

Th-230 1.851E-03 0.0003 1.892E-02 0.0032 0.000E+00 0.0000 1.884E-04 0.0000 3.551E-04 0.0001 2.973E-05 0.0000 1.496E-02
0.0025

U-234 2.251E-04 0.0000 7.494E-03 0.0013 0.000E+00 0.0000 2.315E-04 0.0000 6.265E-04 0.0001 1.594E-03 0.0003 7.553E-03

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

0.0013
U-238 7.693E-02 0.0130 6.702E-03 0.0011 0.000E+00 0.0000 2.198E-04 0.0000 5.949E-04 0.0001 1.514E-03 0.0003 7.172E-03
0.0012
Total 5.440E+00 0.9185 3.491E-02 0.0059 0.000E+00 0.0000 3.644E-02 0.0062 1.057E-01 0.0178 4.701E-02 0.0079 2.587E-01
0.0437
0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

0 Water Fish Radon Plant Meat Milk All Pathways*
Radio-
Nuclide mrem/yr fract. mrem/yr fract. mrem/yr fract. mrem/yr fract. mrem/yr fract. mrem/yr fract.
Pb-210 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
2.728E-01 0.0461
Po-210 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
5.140E-02 0.0087
Ra-226 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
5.452E+00 0.9204
Th-230 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
3.630E-02 0.0061
U-234 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
1.772E-02 0.0030
U-238 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
9.313E-02 0.0157
Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
5.923E+00 1.0000

*Sum of all water independent and dependent pathways.

1RESRAD, Version 6.4 T< Limit = 30 days 05/07/2009 18:24 Page 12

Summary : U_chain_4e3m2_15_2kg vegetables_-GW_-Rn

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

0*Sum of all water independent and dependent pathways.

1RESRAD, Version 6.4 T₉₀ Limit = 30 days 05/07/2009 18:24 Page 13

Summary : U chain 4e3m2 .15 2kg vegetables -GW -Rn

File : C:\RESRAD\FAMILY\RESRAD\USERFILES\NONNUC UCHAIN 4E3M2.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years

Pb-210 2.843E-03 0.0005 1.058E-03 0.0002 0.000E+00 0.0000 1.521E-02 0.0028 7.108E-02 0.0133 1.892E-02 0.0035 1.580E-01
0.0295

Po-210 2.417E-08 0.0000 4.902E-07 0.0000 0.000E+00 0.0000 5.783E-07 0.0000 5.556E-05 0.0000 5.429E-06 0.0000 4.658E-05 0.0000

Ra-226 4.833E+00 0.9039 5.495E-04 0.0001 0.000E+00 0.0000 1.713E-02 0.0032 2.129E-02 0.0040 2.053E-02 0.0038
4.875E-02 0.0091

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

```

Th-230 8.435E-03 0.0016 1.854E-02 0.0035 0.000E+00 0.0000 2.070E-04 0.0000 3.723E-04 0.0001 5.582E-05 0.0000 1.471E-02
0.0028
U-234 1.972E-04 0.0000 6.431E-03 0.0012 0.000E+00 0.0000 1.987E-04 0.0000 5.379E-04 0.0001 1.368E-03 0.0003 6.482E-03
0.0012
U-238 6.703E-02 0.0125 5.751E-03 0.0011 0.000E+00 0.0000 1.886E-04 0.0000 5.107E-04 0.0001 1.299E-03 0.0002 6.154E-03
0.0012
Total 4.911E+00 0.9186 3.233E-02 0.0060 0.000E+00 0.0000 3.293E-02 0.0062 9.385E-02 0.0176 4.217E-02 0.0079 2.341E-01
0.0438
0

```

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

Nuclide mrem/yr fract.
Äääääää Äääääääää Äääääää Äääääääää Äääääääää Äääääääää Äääääääää Äääääääää Äääääääää Äääääääää Äääääääää
Äääääääää Äääääää Äääääääää Äääääää Äääääääää Äääääääää Äääääääää Äääääääää Äääääääää Äääääääää

Pb-210 1.950E-03 0.0005 6.943E-04 0.0002 0.000E+00 0.0000 9.974E-03 0.0024 4.665E-02 0.0111 1.241E-02 0.0029 1.036E-01
0.0246

Po-210 1.423E-14 0.0000 2.791E-13 0.0000 0.000E+00 0.0000 3.293E-13 0.0000 3.164E-11 0.0000 3.092E-12 0.0000 2.652E-11 0.0000

Ra-226 3.795E+00 0.9001 5.808E-04 0.0001 0.000E+00 0.0000 1.537E-02 0.0036 2.714E-02 0.0064 1.852E-02 0.0044
6.139E-02 0.0146

Th-230 2.120E-02 0.0050 1.765E-02 0.0042 0.000E+00 0.0000 2.452E-04 0.0001 4.278E-04 0.0001 1.111E-04 0.0000 1.417E-02 0.0034

U-234 1.453E-04 0.0000 4.494E-03 0.0011 0.000E+00 0.0000 1.388E-04 0.0000 3.758E-04 0.0001 9.556E-04 0.0002 4.528E-03
0.0011

U-238 4.856E-02 0.0115 4.017E-03 0.0010 0.000E+00 0.0000 1.318E-04 0.0000 3.568E-04 0.0001 9.074E-04 0.0002 4.299E-03
0.0010

Total 3.867E+00 0.9172 2.744E-02 0.0065 0.000E+00 0.0000 2.586E-02 0.0061 7.495E-02 0.0178 3.291E-02 0.0078 1.880E-01
0.0446

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

Total Dose Contributions to Dose (μSv/yr) for Individual Radionuclides (i) and Pathways (P)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years

Water . . . Water-Dependent Pathways
 0 Water Fish Radon Plant Meat Milk All Pathways*

U_chain_4e3m2_15_2kg vegetables -GW -Rn.txt

0*Sum of all water independent and dependent pathways.

1RESRAD, Version 6.4 T₉₀ Limit = 30 days 05/07/2009 18:24 Page 15

Summary : U_chain_4e3m2 .15 2kg vegetables_-GW_-Rn

File : C:\RESRAD-FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

Nuclide mrem/yr fract.
ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ

Pb-210 6.615E-04 0.0003 2.050E-04 0.0001 0.000E+00 0.0000 2.945E-03 0.0014 1.378E-02 0.0065 3.664E-03 0.0017 3.060E-02 0.0144

Po-210 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 4.489E-29 0.0000 4.386E-30 0.0000

U chain 4e3m2 15 2kg vegetables -GW -Rn.txt

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
 As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
2.127E+00 1.0000

*Sum of all water independent and dependent pathways.

1RESRAD, Version 6.4 T₉₀ Limit = 30 days 05/07/2009 18:24 Page 16

Summary : U chain 4e3m2 .15 2kg vegetables -GW -Rn

File : C:\RESRAD FAMILY\RESRAD\USERFILES\NONNUC UCHAIN 4E3M2.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Ground Inhalation Radon Plant Meat Milk Soil

Radio- ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

AAAAAAAAAAAAA AAAAAA AAAAAA AAAAAA AAAAAA

Nuclide mrem/yr fract. mrem/yr fract. mrem/yr fract. mrem/yr fract. mrem/yr fract. mrem/yr fract.

AAAAAAAAA AAAAAAAA AAAAAAA AAAAAAAA AAAAAAA AAAAAAAA

Pt-219-1-336E-05-0-0001-3-041E-06-0-0000-0-000E+00-0-0000-3-031E-05-0-0002-1-333E-04-0-0007-3-656E-05-0-0002-3-017E-04-0-0000

Pb-210

Rs 210.0 0.000E+00 0.00000 0.000E+00 0.00000 0.000E+00 0.00000 0.000E+00 0.00000 0.000E+00 0.00000

P8-210 0.000E+0
0.000E+00 0.0000

0.000E+00 0.0000
Ra-226 1.254E-01 0.6701 2.864E-05 0.0002 0.000E+00 0.0000 5.505E-04 0.0029 1.691E-03 0.0090 6.732E-04 0.0036 3.774E-03
0.0202

Th-230 4.124E-02 0.2204 6.241E-03 0.0334 0.000E+00 0.0000 1.803E-04 0.0010 3.875E-04 0.0021 1.531E-04 0.0008 5.537E-03
0.0296

U-234 1.004E-05 0.0001 3.095E-05 0.0002 0.000E+00 0.0000 9.516E-07 0.0000 2.557E-06 0.0000 6.345E-06 0.0000 3.102E-05
0.0002

U-238 5.895E-04 0.0032 2.657E-05 0.0001 0.000E+00 0.0000 8.716E-07 0.0000 2.361E-06 0.0000 6.001E-06 0.0000 2.843E-05
0.0002

Total 1.672E-01 0.8938 6.329E-03 0.0338 0.000E+00 0.0000 7.620E-04 0.0041 2.221E-03 0.0119 8.751E-04 0.0047 9.676E-03
0.0517

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

U_chain_4e3m2_15_2kg vegetables_GW_Rn.txt

*Sum of all water independent and dependent pathways.

IRESRAD, Version 6.4 T_c Limit = 30 days 05/07/2009 18:24 Page 17

Summary : U_chain_4e3m2_15_2kg_vegetables_-GW_-Rn

File : C:\RESRAD-FAMILY\RESRAD\USERFILES\NONNUC UCHAIN 4E3M2.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

U-238 0.000E+00 0.0000 1.817E-20 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
1.817E-20 0.0000
Total 0.000E+00 0.0000 3.386E-15 1.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000
3.386E-15 1.0000

0*Sum of all water independent and dependent pathways.

1RESRAD, Version 6.4 T₉₀ Limit = 30 days 05/07/2009 18:24 Page 18

Summary : U_chain_4e3m2_15_2kg vegetables_-GW_-Rn

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)						
	Ground	Inhalation	Radon	Plant	Meat	Milk
Radio-						
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
	0.000E+00	0.0000				
Po-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
	0.000E+00	0.0000				
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
	0.000E+00	0.0000				
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
	0.000E+00	0.0000				
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
	0.000E+00	0.0000				
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
	0.000E+00	0.0000				
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
	0.000E+00	0.0000				

0

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways							All Pathways*
	Water	Fish	Radon	Plant	Meat	Milk	
Radio-							
Pb-210	0.000E+00	0.0000	4.606E-15	0.0000	0.000E+00	0.0000	0.000E+00
4.606E-15	0.0000						
Po-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
0.000E+00	0.0000						
Ra-226	0.000E+00	0.0000	1.066E-01	0.9698	0.000E+00	0.0000	0.000E+00
1.066E-01	0.9698						
Th-230	0.000E+00	0.0000	3.044E-03	0.0277	0.000E+00	0.0000	0.000E+00
3.044E-03	0.0277						
U-234	0.000E+00	0.0000	2.426E-04	0.0022	0.000E+00	0.0000	0.000E+00
2.426E-04	0.0022						
U-238	0.000E+00	0.0000	2.975E-05	0.0003	0.000E+00	0.0000	0.000E+00
2.975E-05	0.0003						
Total	0.000E+00	0.0000	1.099E-01	1.0000	0.000E+00	0.0000	0.000E+00
1.099E-01	1.0000						

*Sum of all water independent and dependent pathways.

RESRAD, Version 6.4 T< Limit = 30 days 05/07/2009 18:24 Page 19

Summary : U_chain_4e3m2_15_2kg vegetables_-GW_-Rn

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

Dose/Source Ratios Summed Over All Pathways

Parent and Progeny Principal Radionuclide Contributions Indicated

0 Parent Product Thread DSR(j,t) At Time in Years (mrem/yr)/(pCi/g)

(i) (j) Fraction 0.000E+00 1.000E+00 3.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02 1.000E+03

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U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

Pb-210+D Pb-210+D 1.000E+00 2.138E-01 2.014E-01 1.786E-01 1.172E-01 3.470E-02 3.524E-04 0.000E+00 1.219E-16
Pb-210+D Po-210 1.000E+00 5.905E-02 9.378E-02 8.845E-02 5.808E-02 1.715E-02 1.709E-04 0.000E+00 4.485E-15
Pb-210+D äDSR(j) 2.728E-01 2.951E-01 2.671E-01 1.753E-01 5.185E-02 5.233E-04 0.000E+00 4.606E-15
Po-210 Po-210 1.000E+00 5.140E-02 6.608E-03 1.087E-04 6.187E-11 8.779E-29 0.000E+00 0.000E+00 0.000E+00
Ra-226+D Ra-226+D 1.000E+00 5.448E+00 5.263E+00 4.912E+00 3.855E+00 1.908E+00 1.264E-01 0.000E+00 2.864E-04
Ra-226+D Pb-210+D 1.000E+00 3.476E-03 9.698E-03 2.032E-02 4.296E-02 4.628E-02 3.829E-03 0.000E+00 2.860E-03
Ra-226+D Po-210 1.000E+00 7.007E-04 3.204E-03 8.502E-03 2.009E-02 2.233E-02 1.833E-03 1.284E-23 1.035E-01
Ra-226+D äDSR(j) 5.452E+00 5.276E+00 4.941E+00 3.918E+00 1.977E+00 1.321E-01 1.284E-23 1.066E-01
Th-230 Th-230 1.000E+00 3.512E-02 3.489E-02 3.442E-02 3.280E-02 2.816E-02 1.190E-02 0.000E+00 0.000E+00
Th-230 Ra-226+D 1.000E+00 1.185E-03 3.499E-03 7.877E-03 2.084E-02 4.275E-02 4.106E-02 0.000E+00 8.180E-06
Th-230 Pb-210+D 1.000E+00 5.111E-07 3.381E-06 1.642E-05 1.144E-04 4.911E-04 5.311E-04 0.000E+00 8.166E-05
Th-230 Po-210 1.000E+00 8.236E-08 8.929E-07 5.982E-06 5.054E-05 2.309E-04 2.500E-04 1.729E-26 2.954E-03
Th-230 äDSR(j) 3.630E-02 3.839E-02 4.232E-02 5.380E-02 7.163E-02 5.374E-02 1.729E-26 3.044E-03
U-234 U-234 1.000E+00 1.772E-02 1.685E-02 1.521E-02 1.063E-02 3.767E-03 7.162E-05 0.000E+00 3.091E-05
U-234 Th-230 1.000E+00 1.561E-07 4.556E-07 1.005E-06 2.480E-06 4.245E-06 2.395E-06 0.000E+00 2.511E-09
U-234 Ra-226+D 1.000E+00 3.523E-09 2.410E-08 1.208E-07 8.928E-07 4.416E-06 7.714E-06 0.000E+00 6.070E-07
U-234 Pb-210+D 1.000E+00 1.153E-12 1.633E-11 1.733E-10 3.462E-09 3.921E-08 9.337E-08 0.000E+00 5.657E-06
U-234 Po-210 1.000E+00 1.553E-13 3.655E-12 5.641E-11 1.463E-09 1.817E-08 4.386E-08 3.386E-15 2.054E-04
U-234 äDSR(j) 1.772E-02 1.685E-02 1.521E-02 1.064E-02 3.776E-03 8.186E-05 3.386E-15 2.426E-04
OU-238 U-238 5.400E-05 8.518E-07 8.095E-07 7.310E-07 5.107E-07 1.807E-07 3.401E-09 0.000E+00 1.508E-09
OU-238+D U-238+D 9.999E-01 9.313E-02 8.887E-02 8.093E-02 5.827E-02 2.260E-02 6.537E-04 0.000E+00 2.943E-05
U-238+D U-234 9.999E-01 2.491E-08 7.143E-08 1.508E-07 3.164E-07 3.257E-07 2.041E-08 0.000E+00 8.778E-08
U-238+D Th-230 9.999E-01 1.466E-13 9.923E-13 4.886E-12 3.408E-11 1.435E-10 1.454E-10 0.000E+00 4.978E-12
U-238+D Ra-226+D 9.999E-01 2.483E-15 3.626E-14 3.977E-13 8.432E-12 1.092E-10 4.209E-10 0.000E+00 7.135E-10
U-238+D Pb-210+D 9.999E-01 6.541E-19 1.917E-17 4.367E-16 2.520E-14 7.805E-13 4.671E-12 0.000E+00 6.428E-09
U-238+D Po-210 9.999E-01 7.567E-20 3.749E-18 1.287E-16 1.020E-14 3.563E-13 2.188E-12 1.817E-20 2.310E-07
U-238+D äDSR(j) 9.313E-02 8.887E-02 8.093E-02 5.827E-02 2.260E-02 6.537E-04 1.817E-20 2.975E-05
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

The DSR includes contributions from associated (half-life > 30 days) daughters.

RESRAD, Version 6.4 T_{1/2} Limit = 30 days 05/07/2009 18:24 Page 20

Summary : U_chain_4e3m2_15_2kg vegetables_-GW_-Rn

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

Single Radionuclide Soil Guidelines G(i,t) in pCi/g

Basic Radiation Dose Limit = 2.500E+01 mrem/yr

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

0Nuclide

(i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03	
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Pb-210	9.163E+01	8.470E+01	9.361E+01	1.426E+02	4.821E+02	4.778E+04	*7.634E+13	*7.634E+13	
Po-210	4.864E+02	3.784E+03	2.301E+05	4.041E+11	*4.494E+15	*4.494E+15	*4.494E+15	*4.494E+15	
Ra-226	4.586E+00	4.738E+00	5.060E+00	6.381E+00	1.265E+01	1.893E+02	*9.885E+11	2.345E+02	
Th-230	6.886E+02	6.512E+02	5.907E+02	4.647E+02	3.490E+02	4.652E+02	*2.018E+10	8.213E+03	
U-234	1.410E+03	1.484E+03	1.643E+03	2.350E+03	6.621E+03	3.054E+05	*6.247E+09	1.030E+05	
U-238	2.685E+02	2.813E+02	3.089E+02	4.290E+02	1.106E+03	3.824E+04	*3.361E+05	*3.361E+05	

*At specific activity limit

0

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g

at tmin = time of minimum single radionuclide soil guideline

and at tmax = time of maximum total dose = 0.000E+00 years

0Nuclide Initial tmin DSR(i,tmin) G(i,tmin) DSR(i,tmax) G(i,tmax)

(i)	(pCi/g)	(years)	(pCi/g)	(pCi/g)					
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Pb-210	1.000E+00	0.814 ñ 0.002	2.957E-01	8.454E+01	2.728E-01	9.163E+01			
Po-210	1.000E+00	0.000E+00	5.140E-02	4.864E+02	5.140E-02	4.864E+02			
Ra-226	1.000E+00	0.000E+00	5.452E+00	4.586E+00	5.452E+00	4.586E+00			
Th-230	1.000E+00	46.83 ñ 0.09	7.525E-02	3.322E+02	3.630E-02	6.886E+02			
U-234	1.000E+00	0.000E+00	1.772E-02	1.410E+03	1.772E-02	1.410E+03			
U-238	1.000E+00	0.000E+00	9.313E-02	2.685E+02	9.313E-02	2.685E+02			

1RESRAD, Version 6.4 T« Limit = 30 days 05/07/2009 18:24 Page 21

Summary : U_chain_4e3m2_15_2kg vegetables_-GW_-Rn

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\NONNUC_UCHAIN_4E3M2.RAD

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

0Nuclide Parent THF(i)

DOSE(j,t), mrem/yr

U_chain_4e3m2_15_2kg_vegetables_-GW_-Rn.txt

THF(i) is the thread fraction of the parent nuclide.

1RESRAD, Version 6.4 T₉₀ Limit = 30 days 05/07/2009 18:24 Page 22

Summary : U_chain_4e3m2_.15_2kg vegetables_-GW_-Rn

U_chain_4e3m2_15_2kg vegetables_-GW_-Rn.txt

File : C:\RESRAD FAMILY\RESRAD\USERFILES\NONNUC UCHAIN 4E3M2.RAD

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

U_chain_4e3m2_15_2kg_vegetables_-GW_-Rn.txt

U-238 äS(j): 1.000E+00 9.567E-01 8.757E-01 6.424E-01 2.651E-01 1.197E-02 1.714E-06 6.029E-20
||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

THF(i) is the thread fraction of the parent nuclide.

0RESCALC.EXE execution time = 3.67 seconds